

Revisionary notes on the genus  
*Achyra* GUENÉE  
with a new synonym and the description  
of *Achyra takowensis* sp. n.  
(Lepidoptera : Pyralidae, Pyraustinae)  
(Studies on Pyralidae I)

K. V. N. MAES

Museum voor Dierkunde, K. L. Ledeganckstraat 35, B-9000 Ghent, Belgium

**Abstract**

The nomenclature and the diagnostic characters of the genus *Achyra* GUENÉE are discussed. Besides the known synonyms *Eurycreon* LEDERER and *Tritaea* MEYRICK, *Dosara* WALKER is also considered as a new synonym for the genus. The following species are placed under *Achyra*: *affinitalis* (LEDERER) with its synonym *ustalis* (WALKER); *bifidalis* (FABRICIUS) with its synonyms *evanidalis* (BERG), *inornatalis* (WALKER), *obsoletalis* (BERG) and *stolidalis* (SCHAUS); *brasiliensis* (CAPPS); *coelatalis* (WALKER) comb. n.; *eneanalis* (SCHAUS); *llaguenalis* MUNROE; *massalis* (WALKER) comb. n.; *nudalis* (HÜBNER) with its synonym *interpunctalis* (HÜBNER); *occidentalis* (PACKARD); *piuralis* (CAPPS); *protealis* (WARREN); *rantalalis* (GUENÉE) with its synonyms *caffrei* (FLINT & MALLOCK), *collucidalis* (MÖSCHLER), *communis* (GROTE), *crinistalis* (WALKER), *crinitalis* (LEDERER), *diotimetalis* (WALKER), *intractella* (WALKER), *licealis* (WALKER), *murcialis* (WALKER), *nestusalis* (WALKER), *posticata* (GROTE & ROBINSON), *similalis* auct., nec GUENÉE *siriusalis* (WALKER) and *subfulvalis* (HERRICH-SCHÄFFER); *similalis* (GUENÉE) with its synonyms *ferruginea* (WARREN) and *garalis* (SCHAUS). A new species from Taiwan *A. takowensis* sp. n. is described.

**Foreword**

This paper is the first in a series on the systematics of the Pyralidae, especially the Pyraustinae, of the world. Previously, a study was made on the usefulness of different morphological structures including tympanal organs. The description, preparation technique and a list of references of the latter are given in MAES, 1985.

**Introduction**

The genus *Achyra* was established by GUENÉE in LUCAS, 1849, for the two nominal species *Pyralis interpunctalis* HÜBNER, 1796 and *Pyralis nudalis*

HÜBNER, 1796. HÜBNER, 1796, 6, p. 11, nr. 11 described *interpunctalis* as a nominal species, but suggested at the same time that it was probably a subspecies of *nudalis* HÜBNER, 1796 6, p. 11, nr. 10. GUENÉE, 1849, in establishing the genus *Achyra*, suggested that *interpunctalis* HÜBNER and *nudalis* HÜBNER were one species. MARION, 1957, designated *Pyralis interpunctalis* HÜBNER as type-species of *Achyra* GUENÉE. He cited in error *interpunctalis* as «désignation originelle». He considered *interpunctalis* synonymous with *nudalis*. MUNROE, 1976 : p. 45 in his revision of the North American species of the genus *Achyra* also cited erroneously *interpunctalis* as "original designation". Following MARION, 1957, he considered *interpunctalis* synonymous with *nudalis*. FLETCHER and NYE, 1984 correctly considered *Pyralis interpunctalis* HÜBNER as type-species of the genus *Achyra*, designated by subsequent designation by MARION, 1957.

After studying several species of the genus *Achyra*, the names *interpunctalis* and *nudalis* were found to apply to the same species. From the original descriptions of *interpunctalis* and *nudalis* in LUCAS, 1849, *interpunctalis* is a junior subjective synonym of *nudalis*.

### Diagnostic characters

Externally, species belonging to the genus *Achyra* are difficult to distinguish from species belonging to other related genera. The genus can be recognized from other Pyraustinae genera by a series of characters in the genitalia. Morphological structures in the tympanal organs proved to be important at the genus and species level.

The male genitalia have the uncus triangular, dorsally with simple setae. The valvae are rounded, and a well developed transtilla is present with strongly developed ventral processes. As most Pyraustinae, the valvae have a sella and an editum. The sella is a simple lobe, distally with minute spines. The editum is placed dorso-laterally of the sella. The scales on the editum are long, flattened in the middle and ending in a point. The sacculus can be simple or modified, having strongly sclerotized spines. The juxta consists of two plates ventrally fused and as such forming a U or a V. The aedeagus is straight ; the cornutus can consist of a plate or different spines.

The female genitalia have a rhomboid signum and a second smaller signum at the base of the appendix bursae.

The tympanal organs are strongly invaginated. The fornix tympani is narrow, the saccus tympani shallow. The venula secunda clearly reaches beyond the bulla tympani.

## Discussion

After completing a study of this genus on material from the different zoogeographical regions, the following synonymy could be established :

*Achyra* GUENÉE, 1849, in Lucas, *Exploration Scientifique de l'Algérie*, 3 : 404.

Type-species : *Pyralis interpunctalis* HÜBNER, 1796, *Samml. eur. Schmett.* 6 : p. 11, nr. 11, pl. 19, fig. 128, by subsequent designation by Marion, 1957, *Entomologiste* 13 : 83.

Note : *Pyralis interpunctalis* HÜBNER, 1796 is a junior subjective synonym of *P. nudalis* HÜBNER, 1796.

*Dosara* WALKER, 1859, *List Specimens lepid. Insects Colln. Br. Mus.* 19 : 811 (key), 828. **syn. nov.**

Type-species : *Dosara coelatalis* WALKER, 1859, *ibidem*, 19 : 829, by original designation.

*Eurycreon* LEDERER, 1863, *Wien. ent. Monatschr.* 7 : 366, 376.

Type-species : *Pyralis nudalis* HÜBNER, 1796, *Samml. eur. Schmett.* 6 : p. 11, nr. 10, pl. 14, fig. 90, by subsequent designation by SHIBUYA, 1928, *J. Fac. Agric. Hokkaido imp. Univ.* 22 : 267.

Note : *Eurycreon* was established as a subgenus of *Botys* LATREILLE, [1802].

*Tritaea* MEYRICK, 1884, *Trans. ent. Soc. Lond.* 1884 : 292 (key), 341.

Type-species : *Scopula ustalis* WALKER, [1886] 1865, *List Specimens lepid. Insects Colln. Br. Mus.* 34 : 1477, by monotypy.

Note : *S. ustalis* is a junior subjective synonym of *Botys affinitalis* LEDERER, 1863.

The following species and their synonyms could be placed under the genus *Achyra* :

*affinitalis* (LEDERER, 1863)  
*ustalis* (WALKER, [1866])  
*bifidalis* (FABRICIUS, 1794)  
*evanidalis* (BERG, 1875)  
*obsoletalis* (BERG, 1875)  
*inornatalis* (WALKER, [1866])  
*stolidalis* (SCHAUS, 1940)  
*brasiliensis* (CAPPS, 1967)  
*coelatalis* (WALKER, 1859) **comb. n.**  
*eneanalis* (SCHAUS, 1923)  
*llaguenalis* MUNROE, 1978  
*massalis* (WALKER, 1859) **comb. n.**  
*nudalis* (HÜBNER, 1796)  
*interpunctalis* (HÜBNER, 1796)  
*occidentalis* (PACKARD, 1873)  
*piuralis* (CAPPS, 1967)  
*protealis* (WARREN, 1892)

*rantal* (GUENÉE, 1854)  
*caffreii* (FLINT and MALLOCK, 1920)  
*collucidalis* (MÖSCHLER, 1890)  
*communis* (GROTE, 1876)  
*crinialis* (WALKER, 1859)  
*crinitalis* (LEDERER, 1863)  
*diotimetalis* (WALKER, 1859)  
*intractella* (WALKER, 1863)  
*licealis* (WALKER, 1859)  
*murcialis* (WALKER, 1859)  
*nestusalis* (WALKER, 1859)  
*posticata* (GROTE and ROBINSON, 1887)  
*similalis* auct., nec GUENÉE, 1854  
*siriussalis* (WALKER, 1859)  
*subfulvalis* (HERRICH-SCHÄFFER, 1871)  
*similalis* (GUENÉE, 1854)  
*ferruginea* (WARREN, 1892)  
*garalis* (SCHAUS, 1906)

In addition to these species a new species was found from Taiwan :

*Achyra takowensis* sp. n.

Holotype : ♂ Takow Formosa 13.08.1904 A. E. WILEMAN, 296, WILEMAN Coll. BM 1926-261 ; Pyralidae BM slide no 17406 ♂

Paratype : ♀ Takow Formosa 13.08.1904 A. E. WILEMAN, WILEMAN Coll. BM 1926-261 ; Pyralidae BM slide no 17407 ♀.

Both types are placed in BMNH.

Description

External characters, ♂ + ♀ (figs. 1, 2) : frons conical, smoothly scaled ; vertex with erect scaling ; eyes and ocelli normally developed ; maxillary palpi prominent, with long scales ; labial palpi porrect, third segment scaled to a point, dorsally light-brown, ventrally white ; antennae filiform ; thorax, tegulae, abdomen dorsally brown-yellow ; forewing length 7.3 mm (paratype) to 7.5 mm (holotype), apex slightly rounded, termen almost straight ; antemedial zone not distinguishable ; medial zone brown to dark-brown ; postmedial line almost straight, originating slightly before the apex ; claviform stigma present, dark-brown ; postmedial zone light-brown ; termen dark-brown lined ; fringe grey-brown ; hindwings brown-yellow somewhat darker brown near the fringe ; fringe as in forewing ; forewings beneath brown, costa and postmedial zone brown-yellow ; termen narrowly lined ; hindwings without pattern.

Tympanal organs (fig. 3A) : praecinctorium weakly bilobed ; tympanal organs invaginated ; fornix tympani narrow ; bullae tympani parallel with body axis ; processus tympani very small ; spinula absent ; saccus tympani shallow ; venulae secundae long ; rami tympani slightly curved ; zona glabra tympani with two sclerified rods parallel to the rami tympani, both connected by a transverse bridge.

Genitalia : male (fig. 3B,C) : uncus pointed, dorsally with simple setae ; tuba analis with subscaphium ; tegumen broad ; vinculum with simple saccus ; transtilla well developed, ventrally expanded ; valves identical ; sella strongly developed bearing short spines, editum with simple setae, dorso-distally from sella ; juxta consisting of two sclerites ; aedeagus straight, vesica with plate-like cornutus ending in a point.

Female (fig. 3D) : papillae anales with short and long setae ; apophyses normally developed, apophyses posteriores and anteriores of the same length ; sinus vaginalis with minute spines ; ostium bursae ending in a cup-like strongly sclerotized antrum ; ductus seminalis broader at the an-



Fig. 1. *Achyra takowensis* sp. n. holotype ♂ Takow Formosa 13.VIII.1904. A. E. WILEMAN, 296. WILEMAN Coll. BM 1929-261. Pyralidae BM slide no 17406.



Fig. 2. *Achyra takowensis* sp. n. paratype ♀ Takow Formosa 13.VIII.1904. A. E. WILEMAN, WILEMAN Coll. BM 1929-261. Pyralidae BM slide no 17407.

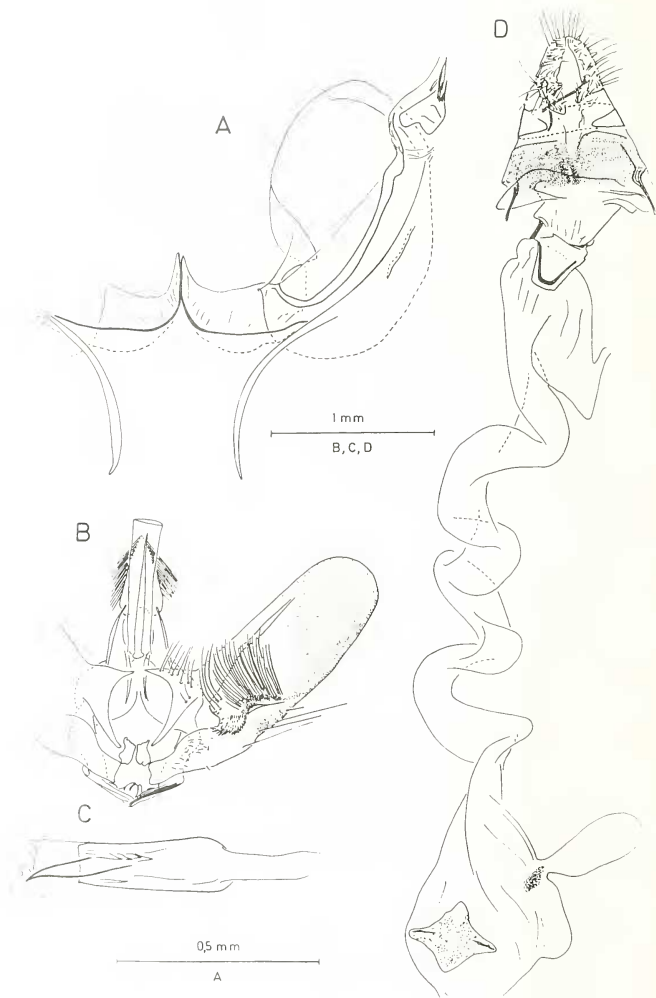


Fig. 3. *Achyra takowensis* sp. n. A : tympanal organs paratype ; B : male genitalia without aedeagus holotype ; C : aedeagus holotype ; D : female genitalia paratype.

trum ; ductus bursae loosely coiled ; corpus bursae with two signa : main signum rhomboid, all four sides of equal length, second signum smaller at the base of the accessory sac.

The early stages are unknown.

Externally, *A. takowensis* sp. n. closely resembles *A. coelatalis* (WALKER) and *A. massalis* (WALKER).

It can easily be distinguished from both species by the structure of the cornutus : *A. coelatalis* having a cornutus with up to a dozen short spines, *A. massalis* with a cornutus consisting of three long, heavy sclerotized spines, and *A. takowensis* with a single plate-like cornutus. The ventral zone of the editum of *A. coelatalis* is characteristically sclerotized. This sclerotized zone is lacking in *A. takowensis*. The editum of *A. massalis* is rather poorly developed.

### Phylogenetic relationships

The form and position of the sella and the editum is considered as an autapomorphy for the genus *Achyra*. The ventral extension of the transtilla relates this genus with some species of the genus *Loxostege* HÜBNER, [1825] 1816. MUNROE, 1976 relates the former with the genus *Hahncappisia* MUNROE 1976 on the basis of morphological characters in the genitalia.

### Acknowledgements

The author would like to thank Mr. M. SHAFFER for guiding him through the collection of the BMNH during his visit and for discussing the paper.

### References

- FLETCHER, D. S. & NYE, I. W. B., 1984. — The Generic Names of the Moths of the World, volume 5.
- GUENÉE, 1849, in LUCAS, Exploration Scientifique de l'Algérie pendant ... 1840, 1841, 1842 ... Lépidoptères. Zoologie, 2 (3) : 345-413.
- HÜBNER, J., 1796. — Samml. eur. Schmett. 6.
- LEDERER, J., 1863. — Beitrag zur Kenntnis der Pyralidinen, *Wien. ent. Monatschr.* 7 : 243-280, 331-502, pl. 2-18.
- MAES, K. V. N., 1985. — A Comparative Study of the Abdominal Tympanal Organs in Pyralidae (Lepidoptera). I. Description, terminology, preparation technique. *Nota lepid.* 8 (4) : 341-350.
- MARION, H., 1957. — Classification et nomenclature des Pyraustidae d'Europe. *Entomologiste* 13 : 75-87.
- MUNROE, E., in DOMINICK, R. B. *et al.*, 1976. — The Moths of America North of Mexico, Fasc. 13.2A, Pyraloidea (in part).

- WALKER, F., 1859. — List Specimens lepid. Insects Colln. Br. Mus. 19.
- WALKER, F., [1886] 1865. — List Specimens lepid. Insects Colln. Br. Mus. 34.
- SHIBUYA, J., 1928. — The Systematic Study of the Formosan Pyralidae. *J. Fac. Agric. Hokkaido imp. Univ.* 22 : 1-300, pl. 1-9.
- MEYRICK, E., 1884. — On the Classification of Australian Pyralidina. *Trans. ent. Soc. Lond.* 1884 : 61-80, 277-350.